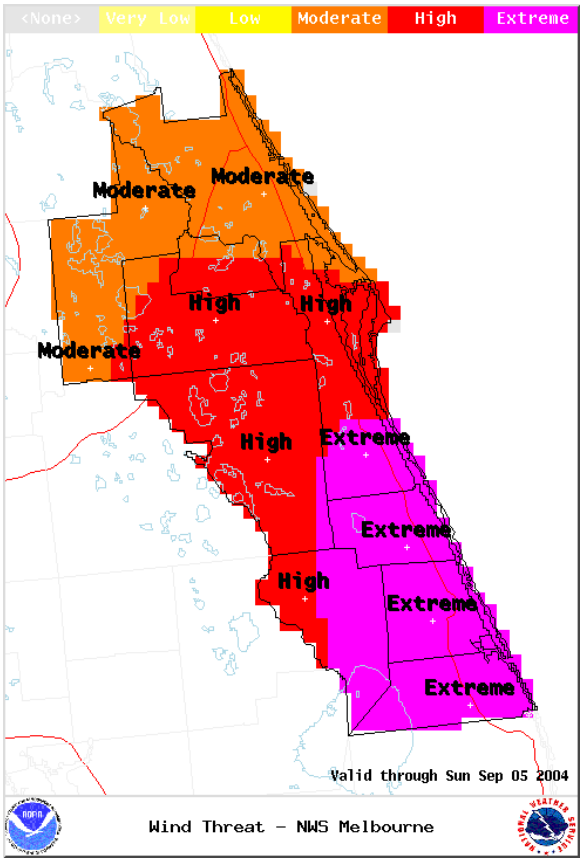
Experimental

Tropical Cyclone Wind Threat Product



Description: Issued by the local Weather Forecast Office (WFO) during tropical cyclone situations, the ***Tropical Cyclone Wind Threat*** product responsibly depicts the impending threat of the associated wind hazard from a location-centric perspective. It conveys the maximum level of threat projected for the event using a color-coded index scale ranging from 0 to 5, *Non-Threatening* to *Extreme*. It combines the forecasting expertise of the Tropical Prediction Center and the local WFO by considering the larger-scale maximum wind speed forecast along with local-scale enhancements, while also accounting for inherent forecast uncertainties in track, intensity, and size of the tropical cyclone. Thus, it effectively employs both deterministic (e.g., wind speed) and probabilistic (e.g., uncertainty) components of the forecast for a more complete expression of the wind threat. A description of each threat level is readily available. Product release is triggered by the issuance of a tropical cyclone Watch or Warning anywhere within the defined area. Routine updates are provided shortly after each official advisory and are continued until tropical cyclone winds are no longer an immediate threat to local communities.

Utility: The ***Tropical Cyclone Wind Threat*** product uses an index scheme to distill the abundance of wind threat assessment information into a single plan-view map that is easy-to-understand. For visual simplicity, warm colors (yellow and orange) are used for lower threat levels with hotter colors (red and purple) reserved for higher threat levels. The product is designed to motivate less-sophisticated users to action regarding preparedness activities, while helping to prevent information paralysis. It also highlights the minimum corresponding actions and relates them to potential impacts. For more-sophisticated users, this product serves as an excellent starting point for critical decision-making and is a coherent briefing tool. In gridded (and shape file) form, it can be ingested into Geographic Information Systems to address specific vulnerabilities, in context of the actual meteorological situation, for a more detailed assessment of the potential wind impact.

For Example: Upon the issuance of a tropical cyclone Watch or Warning, a small business owner might investigate the ***Tropical Cyclone Wind Threat*** product to determine the extent to which their company's interests are being threatened by the associated wind. Store managers would be equipped to make responsible decisions. Pickup and delivery schedules may be altered, trucks and buildings secured, and employees released from work as necessary. More so, government officials would have greater indication of the extent to which certain locations are being threatened, as well as those areas in danger of being hardest hit. Response and recovery resources can be better managed, with other resources safely secured.

Note: The example image depicts the wind threat associated with Hurricane Frances (2004) as expressed within 24 hours of landfall in east central Florida. Threat level depictions are based on the forecast strength of the wind, but also accounting for inherent forecast uncertainty in the track, intensity, and size of Frances.

Hazard – Tropical Cyclone Wind

Threat Index Level	Description
Extreme	• **Threat:** An extreme threat to life and property. • **Minimum Action:** Preparations should be made for the likelihood of major hurricane-force winds (greater than 110 mph) of Category 3, 4, or 5 intensity. • **Potential Impact:** The potential for extensive to catastrophic wind damage. Category 3, 4, or 5 hurricane-force winds typically cause structural damage to buildings, some with complete wall and roof failures. Complete destruction of mobile homes. Numerous large trees and signs blown down. Many roads impassible due to large debris. Widespread power outages.
High	• **Threat:** A high threat to life and property. • **Minimum Action:** Preparations should be made for the likelihood of strong hurricane-force winds (96 to 110 mph) of Category 2 intensity. • **Potential Impact:** The potential for major wind damage. Category 2 hurricane-force winds typically cause damage to roofing material, doors, and windows of buildings, but with some occurrences of structural damage. Considerable damage to mobile homes. Several large trees and signs blown down with further damage to standing trees and shrubs. Several roads impassible due to large debris. Scattered to widespread power outages.
Moderate	• **Threat:** A moderate threat to life and property. • **Minimum Action:** Preparations should be made for the likelihood of hurricane-force winds (74 to 95 mph) of Category 1 intensity. • **Potential Impact:** The potential for moderate wind damage. Category 1 hurricane-force winds typically cause damage to mobile homes, especially if unanchored. Some roofing material, door, and window damage to buildings. A few large trees and signs blown down with further damage to standing trees and shrubs. A few roads impassible due to large debris. Scattered power outages.
Low	• **Threat:** A low threat to life and property. • **Minimum Action:** Preparations should be made for the likelihood of strong tropical storm-force winds (58 to 73 mph). • **Potential Impact:** The potential for minor to locally moderate wind damage. Strong tropical storm-force winds typically cause damage to unanchored mobile homes, porches, carports, awnings, pool enclosures and with some shingles blown from roofs. Large branches break off trees with weak or diseased trees blown down. Loose objects are easily blown about and can become dangerous projectiles. Winds dangerous on bridges and causeways, especially for high profile vehicles. Widely scattered power outages.
Very Low	• **Threat:** A very low threat to life and property. • **Minimum Action:** Preparations should be made for the likelihood of tropical storm-force winds (39 to 57 mph). • **Potential Impact:** The potential for minor wind damage. Tropical storm-force winds typically cause damage to carports, awnings, and pool enclosures. Some damage to unanchored mobile homes. Small branches break off trees and loose objects are blown about. Winds becoming dangerous on bridges and causeways, especially for high profile vehicles. Isolated power outages.
Non-Threatening	• **Threat:** No discernable threat to life and property. • **Minimum Action:** Evaluate disaster plan; ensure seasonal preparedness activities are complete. • **Potential Impact:** Wind damage not expected; winds to remain below tropical storm-force. Windy conditions may still be present.